APPENDIX D

DATA PROCESSING

OVERVIEW OF PROCESSING STEPS

Step 1. Identify Diabetes Claimants

The first step in the data processing for this study was to identify beneficiaries who were diabetes claimants. This consisted of first reading through each claims file to identify claims with diabetes diagnoses listed in the tables above. Claims with dates that fell outside of the 2002 study period were deleted. Next, the claims were scanned to see if they met the criteria for either an acute care service (such as a hospital visit or ER visit) or a face-to-face nonacute service (such as a physician or outpatient department visit) with a diabetes diagnosis. Acute care claims were identified using the following criteria:

1. MedPAR short stay claims with a positive amount for accommodation charges or
2. Outpatient claims revenue codes: 045X, 0981, or
3. Outpatient claims HCPCS codes: 99281, 99282, 99283, 99284, 99285, 99288, or
4. Physician/Supplier claims HCPCS code: 99221, 99222, 99223, 99231, 99232, 99233, 99238, 99239, 99251, 99252, 99253, 99254, 99255, 99261, 99262, 99263 ,99291, 99292, 99281, 99282, 99283, 99284, 99285 ,99288, 99356, 99357

Nonacute face-to-face claims were identified with the following criteria:

1. Outpatient claims revenue codes: 010X, 011X, 012X, 013X, 014X, 015X, 016X, 020X, 021X, 022X, 072X, 080X, 049X, 050X, 051X, 052X, 053X, 055X, 056X, 057X, 058X, 059X, 065X, 066X, 076X, 082X, 083X, 084X, 085X, 088X, 092X, 094X, 096X, 0987, 0972, 0973, 0974, 0975, 0976, 0977, 0978, 0979, 0982, 0983, 0984, 0985, 0986, 0988, 0989, or

2. Outpatient claims HCPCS codes: 99242, 99243, 99244, 99245, 99271, 99272, 99273, 99274, 99275, 99354, 99355, 99381, 99382, 99383, 99384, 99385, 99386, 99387, 99391, 99392, 99393, 99394, 99395, 99396, 99397, 99401, 99402, 99403, 99404, 99411, 99412, 99420, 99429, 99341, 99342, 99343, 99347, 99348, 99349, 99350, 99351, 99352, 99353, 99499, 92002, 92004, 92012, 92014, 99301, 99302, 99303, 99311, 99312, 99313, 99321, 99322, 99323, or

3. Physician/Supplier claims HCPCS codes: 99201, 99202, 99203, 99204, 99205, 99211, 99212, 99213, 99214, 99215, 99217, 99218, 99219, 99220, 99241, 99242, 99243, 99244, 99245, 99271, 99272, 99273, 99274, 99275, 99354, 99355, 99381, 99382, 99383, 99384, 99385, 99386, 99387, 99391, 99392, 99393, 99394, 99395, 99396, 99397, 99401, 99402, 99403, 99404, 99411, 99412, 99420, 99428, 99429, 99341, 99342, 99343, 99347, 99348, 99349, 99350, 99351, 99352, 99353, 99499, 92002, 92004, 92012, 92014, 99301, 99302, 99303, 99311, 99312, 99313, 99321, 99322, 99323, or

4. All MedPAR long-stay hospital and SNF, hospice, and home health claims

Claims with any acute or nonacute services were flagged as such. Nonacute claims with invalid date (from date and through date) were excluded. These data were then summarized at the person level to identify a list of beneficiary HIC numbers that had either one claim for acute care or two claims for nonacute care at least seven days apart.

Step 2. Scan Claims for Diabetes for Quality Measures

The second step of processing involved reading through all claims for beneficiaries in the diabetes sample to identify claims that met the criteria for any of the prevention or outcomes measures described in Appendix C. A 0/1 flag variable for each quality measure, or codes that might contribute to a measure, was created. This information was again summarized over all beneficiary HIC numbers to create person-level flags for the presence of each quality measure.

Step 3. Create Analytic Files

The processing resulted in two main files: (1) a person summary file with one record per Medicare beneficiary in the state, and (2) a claims-level file. The unique list of diabetic beneficiaries, their associated flags for the quality measures, and all records in the Maryland Denominator file were merged to create person summary file. This file contains a flag to identify diabetic beneficiaries and each quality measure, as well as demographic information and information on whether the beneficiary qualifies for the study cohorts, such as persons enrolled in FFS parts A and B for the entire year.

The claims file contains all claims for beneficiaries identified as diabetics; claims are kept whether they include a diabetes diagnosis/service or not. (Since the MCDB with physician services is at the line-item, rather the claim level, a separate file is created for these records; this file contains the same variables as the claims-level file.) Basic information is kept from each of the original claims. Variables were added that identify the type of claim and flag whether the claim counted as one of the quality measures.

Step 4. Calculate Rates of Quality Measures

The person summary file is used to generate all the tables for the report. Two sets of rates were created: unadjusted and adjusted. The unadjusted rates calculate the percent of beneficiaries in the study cohort who had diabetes, and the percent of diabetic beneficiaries in the study cohort who had a given preventive test or outcome.

Adjusted rates were calculated by using direct age-sex standardization to adjust the unadjusted rates in each demographic subgroup. The standard population is the statewide Medicare population in 2002. The eight groups used are males aged <65, 65-74, 75-84, and 85+ and females aged <65, 65-74, 75-84, and 85+.